

Serial No.: 10/669,479
Docket No.: GP-303584

BEST AVAILABLE COPYRemarks

By this response, claims 13, 28, 31, 35, 36, 38, 40 and 42 have been amended, and claims 37 and 39 are canceled. Claims 43-45 are new, and for which protection is desired. New matter has been entered as support for the amendments and new claims is provided for by the specification, claims, and drawings as originally filed. Accordingly, claims 13-36, 38 and 40-45 are pending in this application.

Claim Objections

In the Office Action, claim 31 is objected to due to informalities. This objection to the noted claim has been overcome by the above amendments.

Claim Rejection - 35 USC § 112

In the Office Action, claims 35, 36, 38, 39 and 42 are rejected as being indefinite. This rejection to the noted claims has been overcome by the above amendments.

Claim Rejections - 35 USC § 102

In the Office Action, claims 13-15, 17, 19, 21, 28, 31 and 41 are rejected as anticipated by U.S. Patent No. 6,544,681, hereafter "McLean." Claims 13-22, 24, 26-28, 31 and 32 are rejected as anticipated by U.S. Patent No. 6,974,648, hereafter "Goebel."

Claim 13 has been amended to recite the limitations of "at least one of said first and second lands are provided in a pattern of alternating angles in a plane parallel to both said flow field plates, and said pitch of each said first and second flow field plates is constant."

Neither McLean nor Goebel teach such limitations, and thus claim 13 and those claims that depend therefrom are no longer anticipated by these references. Accordingly, withdrawal of the anticipatory rejections is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 16, 18, 20, 22-25, 29, 30 and 32-42 are rejected as being unpatentable over McLean in view of U.S. Pre-Grant Publication No. 2002/004158, hereafter "Suzuki et al." Claims 38 and 39 are rejected as being unpatentable over McLean in view of U.S. Pre-Grant Publication No. 2001/0041281, hereafter "Wilkinson et al."

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The Examiner concedes that McLean fails to teach or suggest that the cross sectional width of the first channel is approximately equal to that of the second channel.

It is also noted that both McLean and Suzuki et al. fail to teach or suggest lands of a first flow field plate that are formed with a multiple of alternating angles relative to lands of a second flow field plate in a plane parallel to the first flow field plate. The lands 112 of McLean and the lands (protruded portions) 8 of Suzuki et al. are all provided in parallel to each other as shown by FIGS. 9 and 12 of Mclean, and FIGS. 1, 2, 3(a), 4, 5 and 9 of Suzuki et al.

Wilkinson et al. although teaching a flow field plate formed with a multiple of alternating angles, however fails to teach or suggest providing a field flow plate that has a constant pitch. This is due to Wilkinson explicitly teaching providing channels 24 and lands 26 with varying cross sectional widths in the disclose plated designs. The flow field plate designs of Wilkinson et al. which include interconnects 25 further widen the cross section widths of the channels 24, thus further varying the pitch of the flow plates. See, e.g., FIGS. 2a-2e. In particular, Wilkinson et al. disclose providing average channel widths, see e.g., para. [0034] and [0037], and thus this reference fails to teach or suggest providing field flow plates that have a constant pitch.

In view of the above noted deficiencies in the cited art, claim 13 has been amended to recite the limitations of "at least one of said first and second lands are provided in a pattern of alternating angles in a plane parallel to both said flow field plates, and said pitch of each said first and second flow field plates is constant."

Claim 42 has been amended, inter alia, to recite the limitation of "said pitches are constant." Claim 42 as originally filed also recites the limitations of "said second channels define a cross sectional width approximately equal to a cross sectional width defined by said first channels," and "at least said second lands are formed with a multiple of alternating angles relative to said first lands in a plane parallel to said second flow field plate."

Accordingly, as the combined teachings of the cited art fail to teach or suggest all the limitations of claims 13 and 42 as amended, withdrawal of the obviousness rejections is respectfully requested.

Conclusion

In view of the above amendments and remarks, Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the

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undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,
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